

**ICESat-2 PROJECT SCIENCE OFFICE REPORT**  
**Monday, March 2, 2020 thru Sunday, March 8, 2019**

RGTs spanned: 1013-1119  
Cycle 6

**Items of Note:**

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. ICESat-2 seamlessly transitioned the solar array mode from the solar array assembly mode from sailboat to airplane on Sunday, March 8<sup>th</sup>. SIPS Build 4.4 completed acceptance testing and is moving forwards towards operations for release 003 data products. ASAS v5.3 has been accepted by the CCB for the production of most Release 003 ICESat-2 data products. ATLO7 and ATLO8 are holding for a patch update.

**NSIDC ICESat-2 Metrics through March 1:** 1,656 total users of 10 available data products; 3,399,313 sciences files downloaded. ATLO3 is in the lead with 685 unique users of 478,650 files downloaded. ATLO8 is in a close second with 672 unique users and 1,327,183 files downloaded, and ATLO6 is in third place with 456 unique users and 1,300,658 files downloaded.

**\*\*ELEMENT DETAILS BELOW\*\***

**CAMS/POD:**

**CAMS:** Regular CAMS operations: constraint and conjunction monitoring for MW077 and MW078 and mission planning for MW079.

CAMS recommended a laser arm for a laser conjunction with 45156 (ONE-WEB0052) on 5Mar 18:11 (MW078). This event self-mitigated.

**POD:** Regular POD operations continue. Final POD was completed for GPS week 2092.

**ISF:**

All ATLAS housekeeping data is nominal  
Laser 2 is firing at energy level 4 and in science mode  
WTEM Peak to Edge Ratio: 1.206  
Laser 2 Temperature Error: -0.26C  
SADA in SAILBOAT Mode\*  
Spacecraft orientation: + X

**Mission Planning:**

MW78 ATS is loaded to the spacecraft and currently operating  
MW79 has been delivered, nominal calibrations

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Activities during the past week:

Real-time activities:

Executed sCAR91 and sCAR102 to clear routine flags

ATS activities:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection

Other Activities:

DMU042 - 2020/065:14:56, Duration 60 minutes

Created a mini-ATS to mitigate the HIE with 39135 via LCA33. Laser to ARM for 10 seconds centered on 2020/068:12:03:32

Held the March ICESat-2/ATLAS Monthly Performance Status Meeting 2020/066. Topics included thermal tolerances for off-pointing beyond 5 degrees, and the desire to schedule a TAMS window dump.

\*ICESat-2 will transition the solar array assembly mode from SAILBOAT to AIRPLANE via SAM005 2020/069:01:56, Duration 25 minutes

Near-term activities:

Tech HW refresh plan Phase 1 released into operations

Tech HW refresh plan Phase 2:

Procurement has begun

Facility:

Red Hat OS License re-order

RSA Token re-order

Notes/Issues:

N/A

LTO Schedule:

All items remain on schedule

**SIPS:**

- The SIPS is operating nominally:
  - o Ingested and distributed Level 0 data to the ISF.
  - o Generated L1A and L1B products and distributed ATL02s to the ISF, POD, and SCF.
  - o Distributed selected ATL01s to the ISF and SCF by special request.
  - o Generated rapids ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, and ATL10 using ANC03/04/05 files from the CAMS.
  - o Distributed the rapid Science Data products to the SCF.

- Completed installation and patching of the new hardware in the SIPS Ops cluster.
- SIPS Build 4.4 is currently undergoing Acceptance testing.
  - o Started preparing necessary documentation for upcoming SIPS Build 4.4 ORR (Version Description Document, Test Report, etc.).
  - o Sample products (Rel 003 ATL01-ATL13 and Rel 002 ATL16/ATL17) were staged for NSIDC pickup. NSIDC was able to ingest them in their test system.

### **ASAS:**

ASAS v5.3 has been accepted by the CCB for the production of most Release 003 ICESat-2 data products. ATL07 and ATL08 are holding for a patch update.

An ASAS v5.3.1 patch specifically targeted for the ATL07 and ATL08 issues is in work.

Several improvements to the L2 and L3 atmosphere code were completed and approved by the CCB. The improvements include several constants additions/changes, detection of anomalous atmosphere profiles and DDA layer separation.

L3B Ice Sheet work is focused on metadata and bending h5py to create products in a manner similar to the ASAS code.

The land development for the ASAS v5.3.1 patch has been completed and approved by the CCB, the issue being that the top of canopy photons were not being used in the canopy statistics. Work is in progress on pod\_ppd flag rejection and DEM rejection.

L3B Freeboard products (ATL20) are in review by the ATBD lead. Code was developed to mitigate an issue regarding too many input files opened simultaneously.

L3A Sea Ice work is focused on a length-scale issue regarding surface determination. This issue is the Sea ice component to the ASAS v5.3.1 patch.

L3A Inland Water work on pod\_ppd flag rejection has been completed and work is progressing on the correct alignment/interpolation of low-rate data from ATL09.

The Ocean harmonic coefficient code has been completed and approved by the CCB. Work is progressing on the calculation of uncertainties.

The primary ASAS development server at GSFC is being refreshed this week. Preliminary testing indicates this should be an issue-free transition.

### **SCF:**

The SCF is operating nominally. Data for releases 002 and R002 are being ingested and distributed. POD/PPD's request for test data from ASAS has been fulfilled. A second server has

been obtained, set up, and is now running SDMS. Visualizer v7.9 has been released on the SCF web site. A file listing the current SCF data holdings is attached.

\* Data Management -- The new server is functioning properly with SDMS, but configuration is in progress and will be modified as needed. The code that submits subscriptions to SDMS was updated to limit the number of files in each SDMS job to assist with distributing jobs across two nodes; the limit can be adjusted as needed. A minor code update was made to ensure rSCF XFR files have group write permission so they can be pulled properly using our rSCF scripts.

\* Subsetter -- A minor code update was made in operations: some informational warning messages were moved into verbose mode to prevent triggering an SDMS job failure. The code has been running as expected for the past few days.

\* Visualizer -- Version 7.9 has been released. Major changes from v7.0 include support for ASAS v5.3 products, view/save product lineage, simultaneous paging of qualifying subplots, matching x-axis range for compatible subplots, new color-coded on map plot options relevant when masking data, and corrections and improvements to 2D image plots in some specific cases.

#### **ATL02/Instrument Science:**

The Release 003 version of the ATL02 ATBD has been completed, along with a change log. The Release 003 versions of the "Known Issues and Advisories" document and the verification matrix are in work.

In addition, work continues on:

- Preparing a new version of CAL 008.
- Modeling the behavior of the ATLAS receiver during extreme saturation events.
- Extending the QA screening process beyond ATL01 and ATL02.
- Characterizing ATLAS' radiometric sensitivity.
- Investigating the mechanism of "jumps" in the TEP TOF.
- A new method for analyzing the results of on-orbit AMCS calibrations. The current method does not separate return from background, and is usable only for AMCS calibrations done over the night side of the earth. The new method will allow AMCS calibrations to be done usefully over the day side as well.

#### **ATL03:**

Plans for automatic QA trending/screening of rapid ATL03 granules is ongoing. Work continues on development future improvements to the ATL03 data product. One of the ongoing ideas is

the inclusion of a binary “good/no good” flag for photon data in ATL03, to be used as a first pass filter by upper-level products to dictate whether or not they’d be generated.

### **ISF ACTIVITIES MISSION WEEK 078:**

\* Not in science mode

^ Could affect science data quality

2020/065:01:04:19.0000 OCEANscan Duration 22 minutes  
\* 2020/065:05:10:17.0000 TEP data collection Grid 232 Duration 3 minutes  
\* 2020/065:06:31:31.0000 TEP data collection Grid 410 Duration 3 minutes  
\* 2020/065:06:38:15.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/065:09:42:42.0000 TEP data collection Grid 369 Duration 3 minutes  
2020/065:11:18:41.0000 TOO TOOid 1356 RGT 1065 offpoint 1.60deg Duration 2 minutes  
\* 2020/065:11:22:59.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/065:12:51:24.0000 OCEANscan Duration 22 minutes  
\* 2020/065:14:28:23.0000 AMCS Cal over open ocean Duration 2 minutes  
^ 2020/065:14:55:58.0000 DMU042 Duration 60 minutes  
\* 2020/065:16:20:44.0000 TEP data collection Grid 107 Duration 3 minutes  
\* 2020/065:17:39:23.0000 TEP data collection Grid 321 Duration 3 minutes  
\* 2020/065:17:55:02.0000 TEP data collection Grid 104 Duration 3 minutes  
\* 2020/065:19:11:04.0000 TEP data collection Grid 355 Duration 3 minutes  
2020/066:00:38:40.0000 OCEANscan Duration 22 minutes  
\* 2020/066:01:30:50.0000 TEP data collection Grid 309 Duration 3 minutes  
\* 2020/066:06:08:29.0000 TEP data collection Grid 374 Duration 3 minutes  
\* 2020/066:06:12:36.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/066:06:18:55.0000 TEP data collection Grid 230 Duration 3 minutes  
\* 2020/066:11:11:47.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/066:12:28:28.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/066:14:00:03.0000 OCEANscan Duration 22 minutes  
2020/066:15:26:34.0000 RTWscan Duration 90 minutes  
\* 2020/066:17:29:23.0000 TEP data collection Grid 105 Duration 3 minutes  
\* 2020/066:18:48:02.0000 TEP data collection Grid 319 Duration 3 minutes  
\* 2020/066:19:05:28.0000 TEP data collection Grid 67 Duration 3 minutes  
\* 2020/066:20:24:56.0000 TEP data collection Grid 281 Duration 3 minutes  
\* 2020/066:23:43:56.0000 TEP data collection Grid 132 Duration 3 minutes  
2020/067:00:05:00.0000 Stellar window dump Duration 90 minutes  
2020/067:01:47:19.0000 OCEANscan Duration 22 minutes  
\* 2020/067:04:21:35.0000 TEP data collection Grid 197 Duration 3 minutes  
\* 2020/067:05:46:58.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/067:12:02:49.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/067:13:34:25.0000 OCEANscan Duration 22 minutes  
\* 2020/067:15:11:24.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/067:15:32:05.0000 TEP data collection Grid 72 Duration 3 minutes  
\* 2020/067:21:38:47.0000 TEP data collection Grid 207 Duration 3 minutes  
\* 2020/067:23:05:16.0000 TEP data collection Grid 313 Duration 3 minutes  
\* 2020/068:00:39:33.0000 TEP data collection Grid 310 Duration 3 minutes  
2020/068:01:21:40.0000 OCEANscan Duration 22 minutes  
\* 2020/068:02:25:58.0000 TEP data collection Grid 128 Duration 3 minutes  
\* 2020/068:02:34:45.0000 TEP data collection Grid 19 Duration 3 minutes  
\* 2020/068:05:21:19.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/068:05:43:20.0000 TEP data collection Grid 14 Duration 3 minutes  
\* 2020/068:06:55:37.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/068:07:06:28.0000 TEP data collection Grid 157 Duration 3 minutes  
\* 2020/068:09:58:40.0000 TEP data collection Grid 404 Duration 3 minutes  
\* 2020/068:10:10:31.0000 TEP data collection Grid 224 Duration 3 minutes  
\* 2020/068:11:37:11.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/068:13:08:46.0000 OCEANscan Duration 22 minutes  
\* 2020/068:14:45:45.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/068:15:09:05.0000 TEP data collection Grid 36 Duration 3 minutes  
\* 2020/068:16:30:16.0000 TEP data collection Grid 214 Duration 3 minutes  
\* 2020/068:17:56:45.0000 TEP data collection Grid 320 Duration 3 minutes  
2020/068:22:07:26.0000 TOO TOOid 1355 RGT 1118 offpoint 0.73deg Duration 2 minutes  
\* 2020/068:22:37:01.0000 TEP data collection Grid 349 Duration 3 minutes  
\* 2020/069:00:23:54.0000 TEP data collection Grid 167 Duration 3 minutes  
2020/069:00:56:02.0000 OCEANscan Duration 22 minutes  
\* 2020/069:01:45:36.0000 TEP data collection Grid 345 Duration 3 minutes  
^ 2020/069:01:56:15.0000 Solar Array Mode transition SAM005 to AIRPLANE Duration 25 minutes  
\* 2020/069:04:59:23.0000 TEP data collection Grid 268 Duration 3 minutes  
\* 2020/069:06:29:58.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/069:06:51:51.0000 TEP data collection Grid 13 Duration 3 minutes  
2020/069:11:10:21.0000 TOO TOOid 1357 RGT 1126 offpoint 2.88deg Duration 2 minutes  
\* 2020/069:11:13:41.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/069:12:43:08.0000 OCEANscan Duration 22 minutes  
\* 2020/069:14:20:07.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/069:15:43:56.0000 RTWscan Duration 90 minutes  
\* 2020/069:17:41:19.0000 TEP data collection Grid 177 Duration 3 minutes  
\* 2020/069:22:16:35.0000 TEP data collection Grid 278 Duration 3 minutes  
2020/070:00:30:23.0000 OCEANscan Duration 22 minutes  
\* 2020/070:01:43:28.0000 TEP data collection Grid 20 Duration 3 minutes  
\* 2020/070:04:51:27.0000 TEP data collection Grid 16 Duration 3 minutes  
\* 2020/070:06:04:19.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/070:09:08:44.0000 TEP data collection Grid 370 Duration 3 minutes  
\* 2020/070:10:43:04.0000 TEP data collection Grid 367 Duration 3 minutes  
\* 2020/070:11:01:34.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/070:12:20:11.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/070:12:43:30.0000 TEP data collection Grid 4 Duration 3 minutes  
2020/070:13:51:46.0000 OCEANscan Duration 22 minutes  
\* 2020/070:15:33:47.0000 TEP data collection Grid 288 Duration 3 minutes  
\* 2020/070:15:49:27.0000 TEP data collection Grid 71 Duration 3 minutes  
\* 2020/070:20:14:02.0000 TEP data collection Grid 317 Duration 3 minutes  
2020/070:22:51:43.0000 TOO TOOid 1358 RGT 1149 offpoint 2.36deg Duration 2 minutes  
2020/071:01:39:02.0000 OCEANscan Duration 22 minutes  
\* 2020/071:05:38:41.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/071:11:54:32.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/071:13:26:08.0000 OCEANscan Duration 22 minutes  
\* 2020/071:15:03:01.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/071:22:05:00.0000 Laser window dump Duration 2 minutes